

# Teachers Guide

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Teachers guide for the Young Naturalists article “Big, Bold, and Blue” by Christine Petersen. Published in the March–April 2013 *Minnesota Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/blue\\_jays](http://www.mndnr.gov/young_naturalists/blue_jays)

Young Naturalists teachers guides are provided free of charge to classroom teachers, parents, and students. This guide contains a brief summary of the article, suggested independent reading levels, word count, materials list, estimates of preparation and instructional time, academic standards applications, preview strategies and study questions overview, adaptations for special needs students, assessment options, extension activities,



Web resources (including related Minnesota Conservation Volunteer articles), copy-ready study questions with answer key, and a copy-ready vocabulary sheet and vocabulary study cards. There is also a practice quiz (with answer key) in Minnesota Comprehensive Assessments format. Materials may be reproduced and/or modified to suit user needs. Users are encouraged to provide feedback through an online survey at [www.mndnr.gov/education/teachers/activities/ynstudyguides/survey.html](http://www.mndnr.gov/education/teachers/activities/ynstudyguides/survey.html).

\*All Minnesota Conservation Volunteer articles published since 1940 are now online in searchable PDF format. Visit [www.mndnr.gov/magazine](http://www.mndnr.gov/magazine) and click on past issues.

## Summary

“Big, Bold, and Blue” describes the life cycle of one of Minnesota’s most common birds, the blue jay. Readers learn how the blue jay’s anatomy allows it to produce such an amazing range of sounds. Other topics include nesting and rearing, diet, plumage, defensive behavior, migration and seed storing.

### Suggested reading levels:

Third through middle school grades

### Total words:

1,784

### Materials:

*Birds of Minnesota Field Guide, Second Edition* (See References), paper, poster board, colored pencils, crayons, pens, markers

### Preparation time:

One to two hours, not including time for extension activities

### Estimated instructional time:

One or two 50-minute class periods (not including extensions)

## “Big, Bold, and Blue”—Teachers Guide

### Minnesota Academic Standards Applications:

“Big, Bold, and Blue” may be applied to the following Minnesota Department of Education standards:

#### Language Arts

##### Reading Benchmarks

###### Informational Text 3–8

Key Ideas and Details

Craft and Structure

Integration of Knowledge and Ideas

Range of Reading and Level of Text Complexity

##### Writing Benchmarks 3–8

Text Types and Purposes

Writing Process

Research to Build and Present Knowledge

Range of Writing

##### Reading Benchmarks: Literacy in Science and Technical Subjects 6–8

Key Ideas and Details

Craft and Structure

Integration of Knowledge and Ideas

Range of Reading and Level of Text Complexity

##### Writing Benchmarks: Literacy in History/Social Studies, Science and Technical Subjects 6–8

Text Types and Purposes

Writing Process: Production and Distribution of Writing

Research to Build and Present Knowledge

Range of Writing

#### Science

##### Grades 3 & 5

Structure and Function in Living Systems

3.4.1.1.1; 5.4.1.1.1

##### Grades 5 & 7

Interdependence Among Living Systems

5.4.2.1.1; 7.4.2.1.1; 7.4.2.1.2

#### Arts

##### Grades K–12

1. Artistic Foundations: Visual Arts

2. Artistic Process: Create or Make: Visual Arts

3. Artistic Process: Perform or Present: Visual Arts

4. Artistic Process: Respond or Critique: Visual Arts

Current, complete Minnesota Academic Standards are available at [www.education.state.mn.us](http://www.education.state.mn.us). Teachers who find other connections to standards are encouraged to contact *Minnesota Conservation Volunteer*.

## “Big, Bold, and Blue”—Teachers Guide

**Preview** A week or two before reading the article, ask students to be on the lookout for blue jays and to keep notes on what they observe. Begin your preview by asking the class to examine the photos and illustrations and to predict what the story might be about. Follow with the **KWL** strategy (Ogle, 1986) to find out what your students already know (**K**) about blue jays. You might begin by asking small groups to brainstorm their ideas. Then combine the groups’ data to make a class list. Ask what students would like to learn (**W**) about blue jays. As you read and discuss the article you will begin to compile the (**L**) list, or what they learn while reading the article and related materials and participating in extension activities. Display your **K** and **W** ideas on poster board or paper (see Vocabulary preview). See [www.technology.com/web\\_tools/graphic\\_org/kwl](http://www.technology.com/web_tools/graphic_org/kwl) for a KWL generator that will produce individual organizers for your students. KWL gives you the opportunity to introduce interdisciplinary connections you will make during extension activities. If you use the article in science or art class, you may wish to focus your prereading discussion on academic standards that apply for that class. For example, in art you may ask, “Why are blue jays blue?”

Another strategy for accessing prior knowledge is a brainstorming web. You may download a printable web at [www.teachervision.fen.com/tv/printables/TCR/0743932080\\_007.pdf](http://www.teachervision.fen.com/tv/printables/TCR/0743932080_007.pdf).

**Vocabulary preview** See the copy-ready vocabulary list included in this guide. You may wish to modify the list based on your knowledge of your students’ needs or the subject you are teaching. Pretesting vocabulary individually, in small groups, or with your entire class can be an effective vocabulary preview strategy. You may then post-test at the conclusion of this activity (see Assessment section below). Italicized words are not generally included on the list or in the study cards.

You may wish to use the study cards found at the end of this guide. Cut along the horizontal line, fold in the middle, and tape or staple. Study cards (see *Strategic Tutoring*, Hock, Deshler, and Schumaker 2000) can be applied to any subject area. On one side of the card, in large letters, write a key word or phrase students are expected to know. In smaller letters, frame the word or phrase in a question or statement. On the other side of the card, in large letters, write the answer to the question. Finally, in smaller letters, frame the answer in a question or statement. Blanks are provided to allow you or your students to add new words or phrases.

**Study questions overview** Study questions parallel the story (the answer to the first question appears first in the article, followed by the second, and so on). Preview the entire guide with your class before you read the article. You may wish to read the story aloud and complete the study questions in class, in small groups, or as an independent activity. The questions may be assigned as homework, depending on the reading ability of your students. Inclusion teachers may provide more direct support to special needs students (see Adaptations section). The study questions may be also used as a quiz. Compare and contrast tools in Web resources may assist students with questions. Note: Items with an asterisk require varying degrees of critical thinking.

**Adaptations** Read aloud to special needs students. Abbreviate the study questions or highlight priority items to be completed first. If time allows, remaining items may be attempted. Peer helpers, paraprofessionals, or adult volunteers may lend a hand with the study questions. With close teacher supervision, cooperative groups can also offer effective support to special needs students, especially for extension activities.

## “Big, Bold, and Blue”—Teachers Guide

### Assessment

You may use all or part of the study guide, combined with vocabulary, as a quiz. Other assessment ideas include: (1) Students may write an essay describing how the article changed their attitude toward or understanding of blue jays. (2) Students may write multiple-choice, true-false, or short-answer questions. Select the best items for a class quiz. (3) Poster presentations may supplement or take the place of essays. Students may work individually or in small groups. Encourage classmates to give feedback to poster presenters.

### Extension activities

1. “Why is a Bluebird Blue?,” “What’s in a Birdsong?,” and “The Nature of Feathers” are YN articles with teachers guides that make excellent companion pieces for “Big, Bold, and Blue.” See Related Articles for links.
2. Challenge students to learn at least six bird songs. See Web Resources for links to interactive websites. Cornell University has a rich site with resources for teachers.
3. Do a class bird count. Students may observe a backyard feeder, make regular visits to your school forest or nearby habitats, or take a field trip to a state park or scientific and natural area. Bird counts may be conducted throughout the school year as a component of your phenology program. Contact your state park naturalist for a bird checklist for your area (888-646-6367 or email [info.dnr@state.mn.us](mailto:info.dnr@state.mn.us).)
4. Print the bird map ([files.dnr.state.mn.us/eco/mcbs/birdmaps/blue\\_jay\\_map.pdf](http://files.dnr.state.mn.us/eco/mcbs/birdmaps/blue_jay_map.pdf)), preferably in color, for the 2010 county blue jay breeding count. What may be concluded about the blue jay’s habitat from this graphic?
5. Blue jays are members of a large family of birds called Corvidae or corvids. Challenge your students to learn more and report back to their classmates (posters work well). Corvids are renowned for their intelligence and adaptability.
6. Blue jays and other corvids store or cache food. Try the *Squirrel Caching Game* (see link below) to give your students the opportunity to test their caching skills.

### Web resources

#### Minnesota DNR

[www.dnr.state.mn.us/eco/nongame/index.html](http://www.dnr.state.mn.us/eco/nongame/index.html)  
[www.dnr.state.mn.us/birds/index.html](http://www.dnr.state.mn.us/birds/index.html)  
[www.dnr.state.mn.us/volunteer/julaug10/bird\\_songs\\_interactive.html](http://www.dnr.state.mn.us/volunteer/julaug10/bird_songs_interactive.html)  
[files.dnr.state.mn.us/eco/mcbs/birdmaps/blue\\_jay\\_map.pdf](http://files.dnr.state.mn.us/eco/mcbs/birdmaps/blue_jay_map.pdf)

#### Bird songs

[www.birdjam.com/learn.php](http://www.birdjam.com/learn.php)  
[www.birds.cornell.edu/AllAboutBirds/studying/birdsongs](http://www.birds.cornell.edu/AllAboutBirds/studying/birdsongs)

#### Birds of Minnesota

[www.minnesotabirds.com](http://www.minnesotabirds.com)  
[www.allaboutbirds.org/guide/blue\\_jay/id](http://www.allaboutbirds.org/guide/blue_jay/id)  
[animal.discovery.com/guides/wild-birds/a-c/blue-jay.html](http://animal.discovery.com/guides/wild-birds/a-c/blue-jay.html)

#### Corvidae

[animaldiversity.ummz.umich.edu/accounts/Corvidae/classification](http://animaldiversity.ummz.umich.edu/accounts/Corvidae/classification)  
[ibc.lynxeds.com/family/crows-corvidae](http://ibc.lynxeds.com/family/crows-corvidae)  
[www.oiseaux-birds.com/card-blue-jay.html](http://www.oiseaux-birds.com/card-blue-jay.html)

#### Squirrel Caching Game

[www.sciencefriday.com/blogs/05/25/2011/squirrel-caching-game.html?audience=1&series=1](http://www.sciencefriday.com/blogs/05/25/2011/squirrel-caching-game.html?audience=1&series=1)

#### Phenology

[phenology.cfans.umn.edu/](http://phenology.cfans.umn.edu/)  
[www.facebook.com/pages/Minnesota-Phenology-Network/128150143882118](https://www.facebook.com/pages/Minnesota-Phenology-Network/128150143882118)  
<https://www.smm.org/warnernaturecenter/phenology>

## “Big, Bold, and Blue”—Teachers Guide

### Web resources continued

#### Compare and Contrast

[www.readwritethink.org/files/resources/interactives/compcontrast/](http://www.readwritethink.org/files/resources/interactives/compcontrast/)  
[www.manatee.k12.fl.us/sites/elementary/samoset/rcccon1.htm](http://www.manatee.k12.fl.us/sites/elementary/samoset/rcccon1.htm)  
[www.readingquest.org/strat/compare.html](http://www.readingquest.org/strat/compare.html)

#### Minnesota DNR Teacher Resources

[www.mndnr.gov/education/teachers/index.html](http://www.mndnr.gov/education/teachers/index.html)  
[www.mndnr.gov/dnrkids/index.html](http://www.mndnr.gov/dnrkids/index.html)  
Compare and Contrast  
[www.readwritethink.org/files/resources/interactives/compcontrast/](http://www.readwritethink.org/files/resources/interactives/compcontrast/)  
[www.manatee.k12.fl.us/sites/elementary/samoset/rcccon1.htm](http://www.manatee.k12.fl.us/sites/elementary/samoset/rcccon1.htm)  
[www.readingquest.org/strat/compare.html](http://www.readingquest.org/strat/compare.html)

#### Minnesota DNR Teacher Resources

[www.mndnr.gov/education/teachers/index.html](http://www.mndnr.gov/education/teachers/index.html)  
[www.mndnr.gov/dnrkids/index.html](http://www.mndnr.gov/dnrkids/index.html)

\*Note: All websites were active at the time of this guide’s publication. However, some may no longer be active when this guide is accessed.

### Related Articles

In addition to the related articles listed below, every *Minnesota Conservation Volunteer* article published since 1940 is now online at [webapps8.dnr.state.mn.us/volunteer\\_index](http://webapps8.dnr.state.mn.us/volunteer_index)

#### January–February 2004

“The Nature of Feathers”

[www.dnr.state.mn.us/young\\_naturalists/feathers/index.html](http://www.dnr.state.mn.us/young_naturalists/feathers/index.html) (YN article with teachers guide)

#### March–April 2006

“The Hole Story”

[www.dnr.state.mn.us/young\\_naturalists/cavity\\_nesters/index.html](http://www.dnr.state.mn.us/young_naturalists/cavity_nesters/index.html) (YN article with teachers guide)

#### March–April 2007

“What’s in a Bird Song?”

[www.dnr.state.mn.us/young\\_naturalists/birdsong/index.html](http://www.dnr.state.mn.us/young_naturalists/birdsong/index.html) (YN article with teachers guide)

#### July–August 2007

“Hoot, Tremolo, Yodel, and Wail”

[www.dnr.state.mn.us/young\\_naturalists/loons/index.html](http://www.dnr.state.mn.us/young_naturalists/loons/index.html) (YN article with teachers guide)

#### July–August 2010

“Why is a Bluebird Blue?”

[www.dnr.state.mn.us/young\\_naturalists/bird\\_color/index.html](http://www.dnr.state.mn.us/young_naturalists/bird_color/index.html) (YN article with teacher guide)

#### March–April 2011

“Two Eastern Screech Owls”

[www.dnr.state.mn.us/young\\_naturalists/screech\\_owls/index.html](http://www.dnr.state.mn.us/young_naturalists/screech_owls/index.html) (YN article with teachers guide)

### References

Hock, M.F., Deshler, D.D., and Schumaker, J.B. *Strategic Tutoring*. Lawrence, Kan.: Edge Enterprises, 2000.  
Tekeila, Stan. *Birds of Minnesota Field Guide, Second Edition*. Cambridge, Minn.: Adventure Publishing, 2004.

# “Big, Bold, and Blue”—Teachers Guide

## Study Questions

Teachers guide for the Young Naturalists article “Big, Bold, and Blue” by Christine Petersen. Published in the March–April 2013 *Minnesota Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/blue\\_jays](http://www.mndnr.gov/young_naturalists/blue_jays)

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Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

1. John James Audubon mistakenly believed blue jays \_\_\_\_\_

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2. Why can blue jays make so many different sounds? \_\_\_\_\_

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3. Compare a blue jay’s alarm call with its contact call. \_\_\_\_\_

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4. Why do you suppose blue jays’ feeding sounds are so different than other calls? \_\_\_\_\_

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5. Describe how blue jay parents share the job of raising their young. \_\_\_\_\_

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6. Blue jays are omnivores, which means they \_\_\_\_\_

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7. Omnivores have an advantage over herbivores and carnivores because \_\_\_\_\_

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8. How do blue jays benefit deciduous trees? \_\_\_\_\_

\_\_\_\_\_

9. What is another name for dead animals? \_\_\_\_\_

10. How old are young blue jays before they can learn to fly? How do you know? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

11. Are blue jays bullies? Why or why not? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

12. What are the feathers on top of a blue jays head called? What are they for? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

13. What do ornithologists study? \_\_\_\_\_

14. What is caching and how does it benefit blue jays? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

15. Why do you think blue jays cache acorns in sunny places? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*Challenge:* Blue jays are mimics. What advantage do you think this gives them?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_



## Study Questions Answer Key

Teachers guide for the Young Naturalists article “Big, Bold, and Blue” by Christine Petersen. Published in the March–April 2013 *Minnesota Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/blue\\_jays](http://www.mndnr.gov/young_naturalists/blue_jays)

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1. John James Audubon mistakenly believed blue jays **Answers may vary. The main idea is Audubon’s conclusion that blue jays were more aggressive than they really are.**
2. Why can blue jays make so many different sounds? **The blue jay’s ability to make many sounds is explained by its brain, where one area is responsible for learning sounds and another area controls muscles in the bird’s throat and chest, and by the structure of its throat, where the syrinx allows two sounds to occur at once.**
- \*3. Compare a blue jay’s alarm call with its contact call. **Answers will vary. Both calls are loud and harsh. The alarm call is one syllable, while the contact call is three syllables long. The calls have different meanings.**
- \*4. Why do you suppose blue jays’ feeding sounds are so different than other calls? **Answers will vary. When birds find food they may not wish to share it. Loud calls would attract competitors.**
5. Describe how blue jay parents share the job of raising their young. **The female incubates the eggs, rarely leaving the nest until the eggs hatch. The male brings food. Once the eggs hatch both parents bring food the nestlings. Other jobs include protecting the nest and teaching the young to fly and to hunt for food.**
6. Blue jays are omnivores, which means they **eat plants and animals.**
- \*7. Omnivores have an advantage over herbivores and carnivores because **when food is scarce they are more likely to find some.**
8. How do blue jays benefit deciduous trees? **They eat insects that may harm the trees. They also spread seeds, such as acorns, that help some tree reproduce.**
9. What is another name for dead animals? **carrion**
- \*10. How old are young blue jays before they can learn to fly? How do you know? **Three weeks (21 days), because that is when flight feathers appear.**
- \*11. Are blue jays bullies? Why or why not? **Allow students to make their case. They may refer to personal experiences they have had with blue jays.**
12. What are the feathers on top of a blue jays head called? What are they for? **The crest. When the crest is raised it tells other blue jays to watch out.**
13. What do ornithologists study? **Birds**
14. What is caching and how does it benefit blue jays? **Caching is storing food for later use. It benefits blue jays by assuring them a supply of food during times of scarcity, such as winter.**
- \*15. Why do you think blue jays cache acorns in sunny places? **Answers may vary. Seeds buried in wet, dark places could decay.**
- \**Challenge:* Blue jays are mimics. What advantage do you think this gives them? **Answers will vary. Mimicry may scare predators or competitors away. It may attract prey. Encourage creative answers.**



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### Minnesota Comprehensive Assessments Practice Items

Teachers guide for the Young Naturalists article “Big, Bold, and Blue” by Christine Petersen. Published in the March–April 2013 *Minnesota Conservation Volunteer*, or visit [www.mndnr.gov/young\\_naturalists/blue\\_jays](http://www.mndnr.gov/young_naturalists/blue_jays)

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Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

1. Blue jays migrate long distances during fall and spring. True False

Justify your answer. \_\_\_\_\_

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2. How do blue jays help oak trees spread?

- A. They dig up the ground to help seeds sprout.
- B. They carry acorns far from the parent tree and bury them.
- C. They nest in oak trees.
- D. They eat acorns.

3. What is a throat pouch?

- A. A throat pouch is an air sac used in making calls.
- B. A throat pouch is a blue spot under the bird’s beak.
- C. A throat pouch is an expandable sac for storing food.
- D. None of the above

4. At birth baby blue jays cannot \_\_\_\_\_ and have no \_\_\_\_\_.

5. Pinfeathers are

- A. new feathers.
- B. large feathers on the wings and tail.
- C. feathers that can be used as pins after the bird dies.
- D. A and B

## “Big, Bold, and Blue”—Teachers Guide

### Minnesota Comprehensive Assessments Answer Key

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1. Blue jays migrate long distances during fall and spring. **True False**

Justify your answer. **Both answers are correct. Some blue jays migrate and some do not.**

2. How do blue jays help oak trees spread? **B. They carry acorns far from the parent tree and bury them.**

3. What is a throat pouch? **C. A throat pouch is an expandable sac for storing food.**

4. At birth baby blue jays cannot **see** and have no **feathers**.

5. Pinfeathers are **A. new feathers**

## Vocabulary

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<b>aerial</b>	in the air
<b>deciduous</b>	trees that seasonally lose their leaves
<b>flight feathers</b>	large feathers on the tail and wings
<b>mammal</b>	a warm-blooded animal with a backbone
<b>migrate</b>	to make a regular seasonal journey
<b>mimic</b>	to imitate
<b>naturalist</b>	expert in natural history (plants and animals)
<b>omnivore</b>	animal that eats many different foods
<b>ornithologist</b>	person who studies birds
<b>pinfeathers</b>	new feathers
<b>predator</b>	animal that kills and eats other animals
<b>rival</b>	competitor
<b>toxin</b>	poison

# “Big, Bold, and Blue”—Teachers Guide

## Vocabulary Study Cards

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Cut along the horizontal lines, fold in the middle and tape or staple. Blanks are provided to allow you or your students to add new words or phrases.

An **aerial**  
**event** happens

FOLD HERE

When an event happens  
**in the air** it is an

A **deciduous** tree

FOLD HERE

A tree that  
**seasonally loses**  
**its leaves** is

What are  
**flight feathers**?

FOLD HERE

**Large feathers on a bird’s tail**  
**and wings** are called

A **mammal** is a

FOLD HERE

A **warm-blooded animal with**  
**a backbone** is a

To **migrate** is

FOLD HERE

To **make a regular seasonal journey** is to

To **mimic** is

FOLD HERE

To **imitate** is to

What is a **naturalist**?

FOLD HERE

An **expert in natural history (plants and animals)** is a

An **omnivore** is an

FOLD HERE

An **animal that eats many different foods** is an

An **ornithologist** is a

FOLD HERE

A **person who studies birds** is an

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What are **pinfeathers**?

FOLD HERE

A bird’s **new feathers** are called

A **predator** is

FOLD HERE

**An animal that kills and eats other animals** is a

A **rival** is a

FOLD HERE

A **competitor** is a

A **toxin** is a kind of

FOLD HERE

A **poison** may be a

FOLD HERE